

What is claimed is:

1. A device for an optical communication network comprising:
  - a first tunable edge filter that is adapted to receive an input signal and to drop a first range of channels in the input signal; and
  - a second tunable edge filter that is adapted to receive a dropped signal from the first tunable edge filter and that is adapted to drop a second range of channels from the dropped signal from the first tunable edge filter, such that an intersection between the first range of channels and the second range of channels defines a tunable passband for the device.
2. The device of claim 1 wherein the tunable edge filters are bandpass filters with a wide passband having a rising or falling edge that lies outside an operating spectrum for the device.
3. The device of claim 1 wherein the tunable edge filters are high or low pass filters.
4. The device of claim 1 further comprising:
  - a third tunable edge filter that is adapted to receive a first rejected signal from the first tunable edge filter and a second rejected signal from the second tunable edge filter and to create an output signal that includes channels not in the tunable passband for the device.
5. The device of claim 1 further comprising:
  - a combiner that is adapted to receive a first rejected signal from the first tunable edge filter and a second rejected signal from the second tunable edge filter and combine the first and second rejected signals to create an output signal that includes channels not in the tunable passband for the device.
6. The device of claim 5 wherein the combiner is a coupler.

7. The device of claim 1 wherein the tunable edge filters further comprise components selected from a group comprising Fabry-Perot interferometers, bulk diffraction gratings, fiber Bragg gratings, planar lightwave circuits, arrayed waveguide gratings, thin film interference, and Mach-Zender interferometers.
8. The device of claim 1 wherein the signals are wavelength division multiplexing signals.
9. An optical communication device comprising:
  - a first and second tunable filter connected in series,
    - the first tunable filter having a passband with a rising edge that lies outside an operating spectrum for the device, and
    - the second tunable filter having a passband with a falling edge that lies outside the operating spectrum for the device.
10. The device of claim 9 further comprising a third tunable filter that combines a reflected signal from the first tunable filter and the second tunable filter.
11. The device of claim 9 further comprising a combiner that combines a reflected signal from the first tunable filter and the second tunable filter.
12. The device of claim 11 wherein the combiner is a coupler.
13. The device of claim 9 wherein the tunable filters further comprise components selected from a group comprising Fabry-Perot interferometers, bulk diffraction gratings, fiber Bragg gratings, planar lightwave circuits, arrayed waveguide gratings, thin film interference, and Mach-Zender interferometers.
14. The device of claim 9 wherein the device is a wavelength division multiplexing device.

15. A method for filtering an optical communication signal comprising:
  - receiving an input signal;
  - dropping a first range of channels in the input signal using a first tunable edge filter; and
  - dropping a second range of channels from a signal comprising the first range of channels dropped from the first tunable edge filter using a second tunable edge filter, such that an intersection between the first range of channels and the second range of channels defines a tunable passband.
16. The method of claim 15 further comprising the step of combining a first rejected signal from the first tunable filter and a second rejected signal from the second tunable edge filter, thereby creating a third rejected signal that includes channels not in the tunable passband.
17. The device of claim 15 wherein the signals are wavelength division multiplexing signals.
18. A device for an optical communication network comprising:
  - a diffraction grating that receives an input signal and creates a spectrally dispersed signal; and
  - a pair of shutters that selectively block portions of the spectrally dispersed signal so as to define a tunable passband for the device.
19. The device of claim 18 further comprising
  - a mirror which directs portions of the spectrally dispersed signal not blocked by the pair of shutters back along a reverse path to the diffraction grating which recreates an output signal missing channels that were in the blocked portions of the spectrally dispersed signal; and
  - a circulator which directs the output signal to a drop port.

20. The device of claim 19 wherein the signals are wavelength division multiplexing signals.